Dark Matter

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Sears 552

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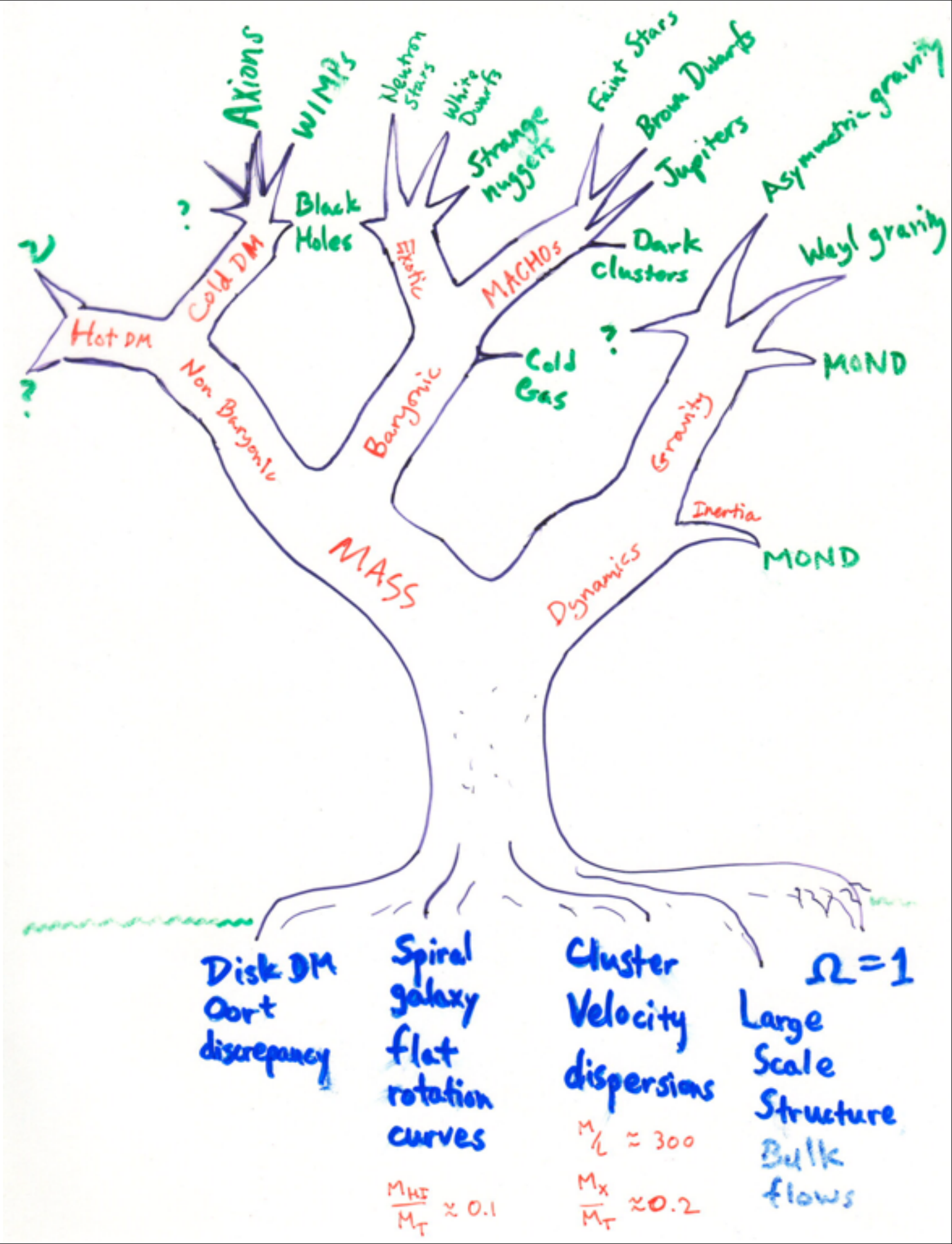


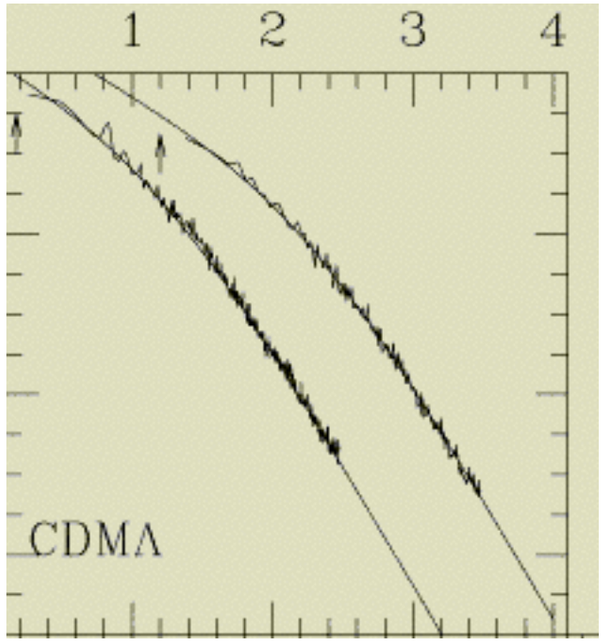
Galaxy Formation

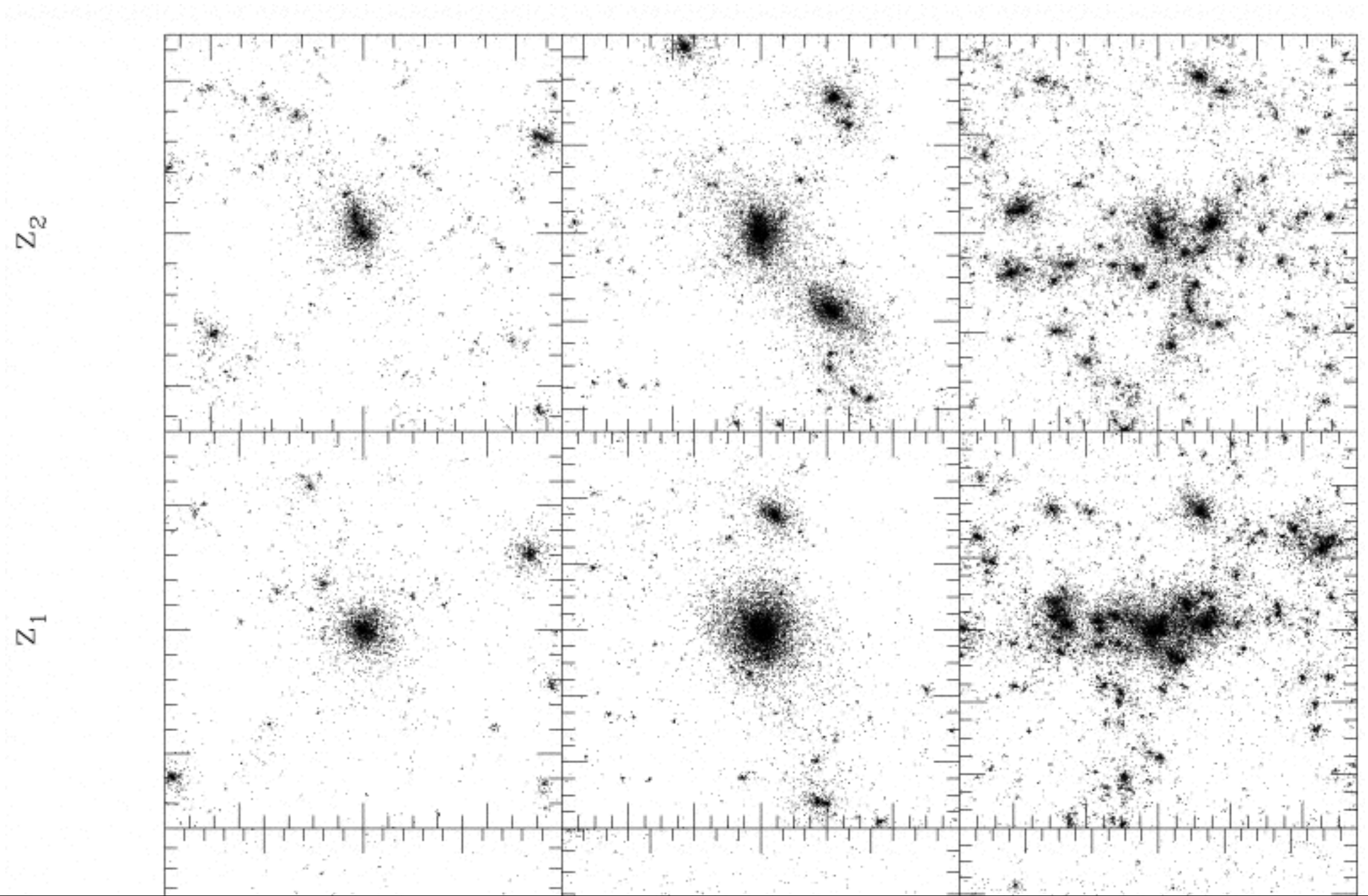
From halos to galaxies

general expectations

adiabatic compression
feedback

NFW





Hierarchical galaxy formation (*not* monolithic)

Small objects conglomerate to make big ones

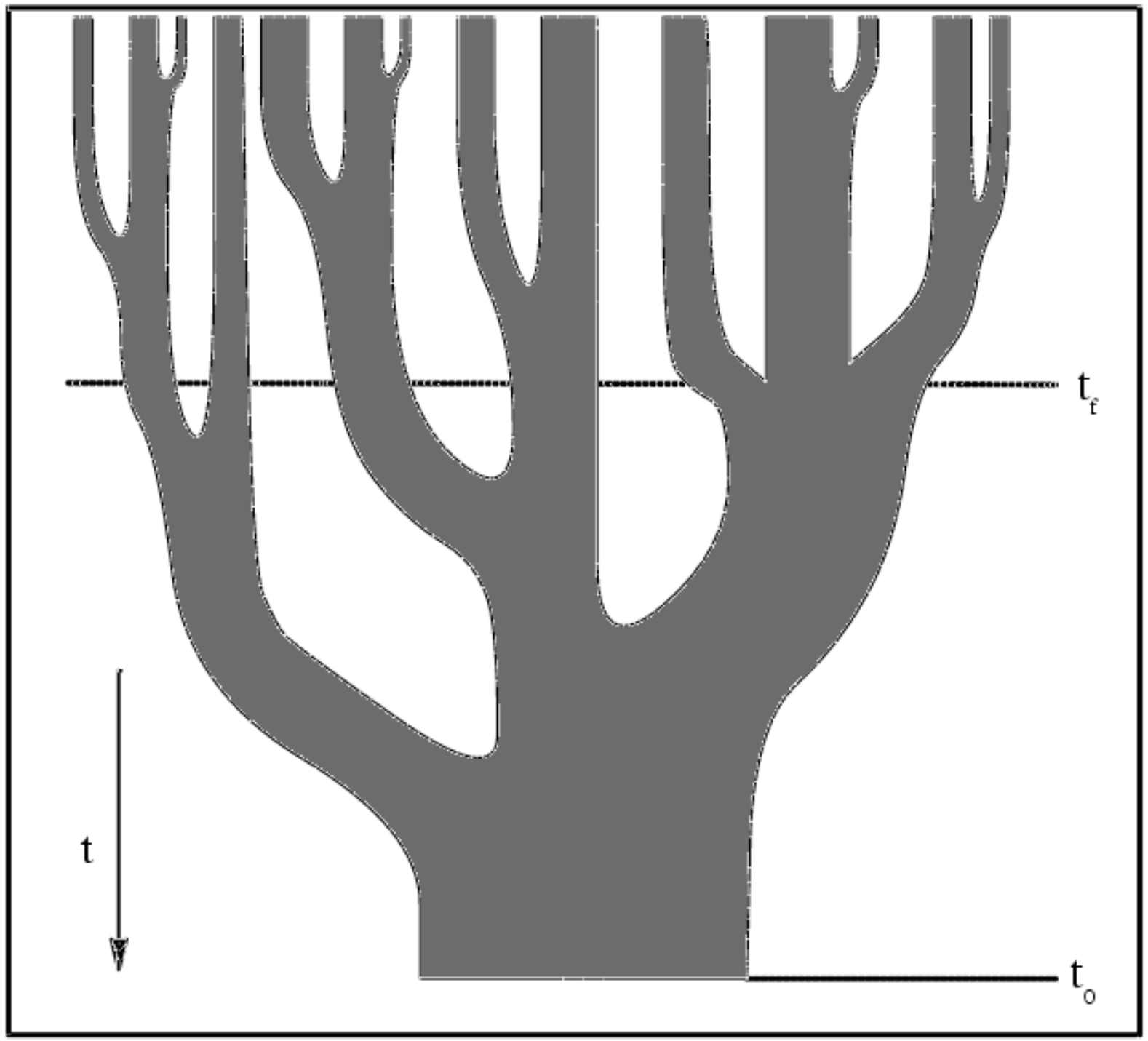


Figure 6. A schematic representation of a "merger tree" depicting the growth of a halo as the result of a series of mergers. Time increases from top to bottom in this figure and the widths of the branches of the tree represent the masses of the individual parent halos. Slicing through the tree horizontally gives the distribution of masses in the parent halos at a given time. The present time t_0 and the formation time t_f are marked by horizontal lines, where the formation time is defined as the time at which a parent halo containing in excess of half of the mass of the final halo was first created.

Gray: dark matter halos

Blue: gas rich disks

Red: elliptical merger remnant

sometimes it is imagined that a disk re-forms around an elliptical to form a bulge+disk system like and Sa galaxy